675 680 685

Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700

Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn
725 730 735

Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly His His His His His His 835

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Asp Ser Gln Gly Arg Ile Thr Ser His Leu Ser Gly Ile Leu Tyr Arg 50 55 60

Val Ser Asn Met Val Glu Val Gly Ile Arg Pro Val Phe Val Phe Asp 70 75 80

Gly Glu Pro Pro Glu Phe Lys Lys Ala Glu Ile Glu Glu Arg Lys Lys

Arg	Arg	АІА	100	Ата	GIU	GIU	Met	105	TTE	Ala	Ala	Leu	110	Ala	GΤΖ
Asp	Lys	Asp 115	Ala	Lys	Lys	Tyr	Ala 120	Gln	Ala	Ala	Gly	Arg 125	Val	Asp	Glu
Tyr	Ile 130	Val	Asp	Ser	Ala	Lys 135	Thr	Leu	Leu	Ser	Tyr 140	Met	Gly	Ile	Pro
Phe 145	Val	Asp	Ala	Pro	Ser 150	Glu	Gly	Glu	Ala	Gln 155	Ala	Ala	Tyr	Met	Ala 160
Ala	Lys	Gly	Asp	Val 165	Glu	Tyr	Thr	Gly	Ser 170	Gln	Asp	Tyr	Asp	Ser 175	Let
Leu	Phe	Gly	Ser 180	Pro	Arg	Leu	Ala	Arg 185	Asn	Leu	Ala	Ile	Thr 190	Gly	Lys
Arg	Lys	Leu 195	Pro	Gly	Lys	Asn	Val 200	Tyr	Val	Asp	Val	Lys 205	Pro	Glu	Ile
Ile	Ile 210	Leu	Glu	Ser	Asn	Leu 215	Lys	Arg	Leu	Gly	Leu 220	Thr	Arg	Glu	Glr
Leu 225	Ile	Asp	Ile	Ala	Ile 230	Leu	Val	Gly	Thr	Asp 235	Tyr	Asn	Glu	Gly	Val 240
Lys	Gly	Val	Gly	Val 245	Lys	Lys	Ala	Leu	Asn 250	Tyr	Ile	Lys	Thr	Tyr 255	Gly
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Glu	Glu	Ile 275	Arg	Asn	Phe	Phe	Leu 280	Asn	Pro	Pro	Val	Thr 285	Asp	Asp	Tyr
Arg	Ile 290	Glu	Phe	Arg	Glu	Pro 295	Asp	Phe	Glu	Lys	Ala 300	Ile	Glu	Phe	Leu
Cys 305	Glu	Glu	His	Asp	Phe 310	Ser	Arg	Glu	Arg	Val 315	Glu	Lys	Ala	Leu	Glu 320

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Ala	Cys 370	Arg	Gly	Gly	Arg	Val 375	His	Arg	Ala	Ala	Asp 380	Pro	Leu	Ala	Gly
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Met	Leu	Leu	Ala 420	Tyr	Leu	Leu	Gly	Pro 425	Ser	Asn	Thr	Thr	Pro 430	Glu	Gly
Val	Ala	Arg 435	Arg	Tyr	Gly	Gly	Glu 440	Trp	Thr	Glu	Asp	Ala 445	Ala	His	Arg
Ala	Leu 450	Leu	Ser	Glu	Arg	Leu 455	His	Arg	Asn	Leu	Leu 460	Lys	Arg	Leu	Glu
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Ala 545	Leu	Lys	Lys	Thr	Lys 550	Lys	Thr	Gly	Lys	Arg 555	Ser	Thr	Ser	Ala	Ala 560
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Pro	Ser	Leu 595	Val	His	Pro	Arg	Thr 600	Gly	Arg	Leu	His	Thr 605	Arg	Phe	Asn
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Leu	Ser	Gln	Glu	Leu 725	Ala	Ile	Pro	Tyr	Glu 730	Glu	Ala	Val	Ala	Phe 735	Ile
Glu	Arg	Tyr	Phe 740	Gln	Ser	Phe	Pro	Lys 745	Val	Arg	Ala	Trp	Ile 750	Glu	Lys
Thr	Leu	Glu 755	Glu	Gly	Arg	Lys	Arg 760	Gly	Tyr	Val	Glu	Thr 765	Leu	Phe	Gly
Arg	Arg 770	Arg	Tyr	Val	Pro	Asp 775	Leu	Asn	Ala	Arg	Val 780	Lys	Ser	Val	Arg
Glu 785	Ala	Ala	Glu	Arg	Met 790	Ala	Phe	Asn	Met	Pro 795	Val	Gln	Gly	Thr	Ala 800
Ala	Asp	Leu	Met	Lys 805	Leu	Ala	Met	Val	Lys 810	Leu	Phe	Pro	Arg	Leu 815	Arg
Glu	Met	Gly	Ala 820	Arg	Met	Leu	Leu	Gln 825	Val	Ala	Asn	Glu	Leu 830	Leu	Leu
Glu	Ala	Pro	Gln	Ala	Arg	Ala	Glu	Glu	Val	Ala	Ala	Leu	Ala	Lvs	Glu

835 840 845

Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val 850 855 860

Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His 865 870 875 880

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<212> PRT

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Tyr Gln Phe Ile Ser Ile Ile Arg Gln Pro Asp Gly Thr Pro Leu Lys 35 40 45

Asp Ser Gln Gly Arg Ile Thr Ser His Leu Ser Gly Ile Leu Tyr Arg 50 55 60

Val Ser Asn Met Val Glu Val Gly Ile Arg Pro Val Phe Val Phe Asp 65 70 75 80

Gly Glu Pro Pro Glu Phe Lys Lys Ala Glu Ile Glu Glu Arg Lys Lys 85 90 95

Arg Arg Ala Glu Ala Glu Met Trp Ile Ala Ala Leu Gln Ala Gly 100 105 110

Asp Lys Asp Ala Lys Lys Tyr Ala Gln Ala Ala Gly Arg Val Asp Glu 115 120 125

Tyr Ile Val Asp Ser Ala Lys Thr Leu Leu Ser Tyr Met Gly Ile Pro 130 135 140

Phe Val Asp Ala Pro Ser Glu Gly Glu Ala Gln Ala Ala Tyr Met Ala 145 150 155 160

Ala Lys Gly Asp Val Glu Tyr Thr Gly Ser Gln Asp Tyr Asp Ser Leu 165 170 175

Leu Phe Gly Ser Pro Arg Leu Ala Arg Asn Leu Ala Ile Thr Gly Lys 180 185 190

Arg Lys Leu Pro Gly Lys Asn Val Tyr Val Asp Val Lys Pro Glu Ile 195 200 205

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Lys	Gly	Val	Gly	Val 245	Lys	Lys	Ala	Leu	Asn 250	Tyr	Ile	Lys	Thr	Tyr 255	Gly
Asp	Ile	Phe	Arg 260	Ala	Leu	Lys	Ala	Leu 265	Lys	Val	Asn	Ile	Asp 270	His	Val
Glu	Glu	Ile 275	Arg	Asn	Phe	Phe	Leu 280	Asn	Pro	Pro	Val	Thr 285	Asp	Asp	Tyr
Arg	Ile 290	Glu	Phe	Arg	Glu	Pro 295	Asp	Phe	Glu	Lys	Ala 300	Ile	Glu	Phe	Leu
Cys 305	Glu	Glu	His	Asp	Phe 310	Ser	Arg	Glu	Arg	Val 315	Glu	Lys	Ala	Leu	Glu 320
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Pro	Glu	Gly	Ala 340	Phe	Val	Gly	Phe	Val 345	Leu	Ser	Arg	Pro	Glu 350	Pro	Met
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Arg	Ala 370	Ala	Asp	Pro	Leu	Ala 375	Gly	Leu	Lys	Asp	Leu 380	Lys	Glu	Val	Arg
Gly 385	Leu	Leu	Ala	Lys	Asp 390	Leu	Ala	Val	Leu	Ala 395	Ser	Arg	Glu	Gly	Leu 400
Asp	Leu	Val	Pro	Gly 405	Asp	Asp	Pro	Met	Leu 410	Leu	Ala	Tyr	Leu	Leu 415	Gly
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Trp	Thr	Glu 435	Asp	Ala	Ala	His	Arg 440	Ala	Leu	Leu	Ser	Glu 445	Arg	Leu	His
Arg	Asn 450	Leu	Leu	Lys	Arg	Leu 455	Glu	Gly	Glu	Glu	Lys 460	Leu	Leu	Trp	Leu

Tyr 465	His	Glu	Val	Glu	Lys 470	Pro	Leu	Ser	Arg	Val 475	Leu	Ala	His	Met	Glu 480
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Glu	Leu	Ala	Glu 500	Glu	Ile	Arg	Arg	Leu 505	Glu	Glu	Glu	Val	Phe 510	Arg	Leu
Ala	Gly	His 515	Pro	Phe	Asn	Leu	Asn 520	Ser	Arg	Asp	Gln	Leu 525	Glu	Arg	Val
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His	Pro	Ile	Val	Glu 565	Lys	Ile	Leu	Gln	His 570	Arg	Glu	Leu	Thr	Lys 575	Leu
Lys	Asn	Thr	Tyr 580	Val	Asp	Pro	Leu	Pro 585	Ser	Leu	Val	His	Pro 590	Arg	Thr
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Leu 625	Gly	Gln	Arg	Ile	Arg 630	Arg	Ala	Phe	Val	Ala 635	Glu	Ala	Gly	Trp	Ala 640
Leu	Val	Ala	Leu	Asp 645	Tyr	Ser	Gln	Ile	Glu 650	Leu	Arg	Val	Leu	Ala 655	His
Leu	Ser	Gly	Asp 660	Glu	Asn	Leu	Ile	Arg 665	Val	Phe	Gln	Glu	Gly 670	Lys	Asp
Ile	His	Thr 675	Gln	Thr	Ala	Ser	Trp 680	Met	Phe	Gly	Val	Pro 685	Pro	Glu	Ala
Val	Asp 690	Pro	Leu	Met	Arg	Arg 695	Ala	Ala	Lys	Thr	Val 700	Asn	Phe	Gly	Val
Leu	Tyr	Gly	Met	Ser	Ala	His	Arg	Leu	Ser	Gln	Glu	Leu	Ala	Ile	Pro

705	710	715	720

Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro 725 730 735

Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg 740 745 750

Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu
755 760 765

Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe 770 780

Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met 785 790 795 800

Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu 805 810 815

Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu 820 825 830

Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu 835 840 845

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<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2819

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Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu
20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala

115	120	125

Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Lys	Asp	Leu
Tyr 145	Gln	Leu	Leu	Ser	Asp 150	Arg	Ile	His	Val	Leu 155	His	Pro	Glu	Gly	Tyr 160
Leu	Ile	Thr	Pro	Ala 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Asp
Gln	Trp	Ala	Asp 180	Tyr	Arg	Ala	Leu	Thr 185	Gly	Asp	Glu	Ser	Asp 190	Asn	Leu
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	_	Thr	Ala	Arg	Lys 205	Leu	Leu	Glu
Glu	Trp 210	Gly	Ser	Leu	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys
Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala

Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
Arg	Glu	Leu 515	Thr	Lys	Leu	Lys	Asn 520	Thr	Tyr	Val	Asp	Pro 525	Leu	Pro	Ser
Leu	Val 530	His	Pro	Arg	Thr	Gly 535	Arg	Leu	His	Thr	Arg 540	Phe	Asn	Gln	Thr
Ala 545	Thr	Ala	Thr	Gly	Arg 550	Leu	Ser	Ser	Ser	Asp 555	Pro	Asn	Leu	Gln	Asn 560
Ile	Pro	Val	Arg	Thr 565	Pro	Leu	Gly	Gln	Arg 570	Ile	Arg	Arg	Ala	Phe 575	Val
Ala	Glu	Ala	Gly 580	Trp	Ala	Leu	Val	Ala 585	Leu	Asp	Tyr	Ser	Gln 590	Ile	Glu
Leu	Arg	Val 595	Leu	Ala	His	Leu	Ser 600	Gly	Asp	Glu	Asn	Leu 605	Ile	Arg	Val
Phe	Gln 610	Glu	Gly	Lys	Asp	Ile 615	His	Thr	Gln	Thr	Ala 620	Ser	Trp	Met	Phe

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys 625 635 Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg 695 Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 735 Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala 755 760 765 Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 790 Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His 805 810 815 <210> 2820 <211> 2520 <212> DNA <213> Artificial Sequence

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<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2821

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val 50 55 60

Ile Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr 75 75 80

Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg 85 90 95

GIn	Leu	Ala	Leu 100	Val	Lys	Arg	Leu	Val 105	Asp	Leu	Leu	Gly	Leu 110	Val	Arg
Leu	Glu	Ala 115	Pro	Gly	Tyr	Glu	Ala 120	Asp	Asp	Val	Leu	Gly 125	Thr	Leu	Ala
Lys	Lys 130	Ala	Glu	Lys	Glu	Gly 135	Tyr	Glu	Val	Arg	Ile 140	Leu	Thr	Ala	Asp
Arg 145	Asp	Leu	Tyr	Gln	Leu 150	Val	Ser	Asp	Arg	Ile 155	His	Val	Leu	His	Pro 160
Glu	Gly	Tyr	Leu	Ile 165	Thr	Pro	Glu	Trp	Leu 170	Trp	Glu	Lys	Tyr	Gly 175	Leu
Lys	Pro	Ser	Gln 180	Trp	Val	Asp	Tyr	Arg 185	Ala	Leu	Ala	Gly	Asp 190	Pro	Ser
Asp	Asn	Ile 195	Pro	Gly	Val	Lys	Gly 200	Ile	Gly	Glu	Lys	Thr 205	Ala	Ala	Lys
Leu	Ile 210	Arg	Glu	Trp	Gly	Ser 215	Leu	Glu	Asn	Leu	Leu 220	Lys	Asn	Leu	Asp
Arg 225	Leu	Lys	Pro	Ala	Ile 230	Arg	Glu	Lys	Ile	Leu 235	Ala	His	Met	Asp	Asp 240
Leu	Lys	Leu	Ser	Trp 245	Asp	Leu	Ala	Lys	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Ala	Lys	Arg	Arg	Glu 265	Pro	Asp	Arg	Glu	Arg 270	Leu	Arg
Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Glu	Ser	Pro	Lys	Ala 295	Leu	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Pro	Glu	Pro	Met	Trp 320
Ala	Glu	Leu	Lys	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly

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Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr
His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
Thr	Gly 450	Val	Arg	Leu	Asp	Val 455	Ala	Tyr	Leu	Gln	Ala 460	Leu	Ser	Leu	Glu
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Gly	His	Pro	Phe	Asn 485	Leu	Asn	Ser	Arg	Asp 490	Gln	Leu	Glu	Arg	Val 495	Leu
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Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
Asn 545	Thr	Tyr	Val	Asp	Pro 550	Leu	Pro	Ser	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
Ser	Ser	Ser	Asp 580	Pro	Asn	Leu	Gln	Asn 585	Ile	Pro	Val	Arg	Thr 590	Pro	Leu
Gly	Gln	Arg	Ile	Arg	Arg	Ala	Phe	Val	Ala	Glu	Ala	Gly	Trp	Ala	Leu

595	600	605

Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615	Ile	Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
His	Thr	Gln	Thr	Ala 645	Ser	Trp	Met	Phe	Gly 650	Val	Pro	Pro	Glu	Ala 655	Val
Asp	Pro	Leu	Met 660	Arg	Arg	Ala	Ala	Lys 665	Thr	Val	Asn	Phe	Gly 670	Val	Leu
Tyr	Gly	Met 675	Ser	Ala	His	Arg	Leu 680	Ser	Gln	Glu	Leu	Ala 685	Ile	Pro	Tyr
Glu	Glu 690	Ala	Val	Ala	Phe	Ile 695	Glu	Arg	Tyr	Phe	Gln 700	Ser	Phe	Pro	Lys
Val 705	Arg	Ala	Trp	Ile	Glu 710	Lys	Thr	Leu	Glu	Glu 715	Gly	Arg	Lys	Arg	Gly 720
Tyr	Val	Glu	Thr	Leu 725	Phe	Gly	Arg	Arg	Arg 730	Tyr	Val	Pro	Asp	Leu 735	Asn
Ala	Arg	Val	Lys 740	Ser	Val	Arg	Glu	Ala 745	Ala	Glu	Arg	Met	Ala 750	Phe	Asn
Met	Pro	Val 755	Gln	Gly	Thr	Ala	Ala 760	Asp	Leu	Met	Lys	Leu 765	Ala	Met	Val
Lys	Leu 770	Phe	Pro	Arg	Leu	Arg 775	Glu	Met	Gly	Ala	Arg 780	Met	Leu	Leu	Gln
Val 785	Ala	Asn	Glu	Leu	Leu 790	Leu	Glu	Ala	Pro	Gln 795	Ala	Arg	Ala	Glu	Glu 800
Val	Ala	Ala	Leu	Ala 805	Lys	Glu	Ala	Met	Glu 810	Lys	Ala	Tyr	Pro	Leu 815	Ala
Val	Pro	Leu	Glu 820	Val	Glu	Val	Gly	Met 825	Gly	Glu	Asp	Trp	Leu 830	Ser	Ala

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<211> 2445

<212> DNA

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<210> 2823

<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2823

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Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser	Leu 50	Leu	Lys	Ala	Leu	Arg 55	Glu	Asp	Gly	Asp	Val 60	Val	Ile	Val	Val
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Gln 75	Thr	Tyr	Glu	Ala	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
Leu	Ile	Lys	Glu 100	Met	Val	Asp	Leu	Leu 105	Gly	Phe	Thr	Arg	Leu 110	Glu	Val
Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Lys	Asp	Leu
Tyr 145	Gln	Leu	Leu	Ser	Asp 150	Arg	Ile	His	Val	Leu 155	His	Pro	Glu	Gly	Tyr 160
Leu	Ile	Thr	Pro	Ala 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Asp
Gln	Trp	Ala	Asp 180	Tyr	Arg	Ala	Leu	Thr 185	Gly	Asp	Glu	Ser	Asp 190	Asn	Leu
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Arg	Lys 205	Leu	Leu	Glu
Glu	Trp 210	Gly	Ser	Leu	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290		Glu	Pro	Met	Trp 295		Glu	Leu	Lys	Ala 300		Ala	Ala	Cys

Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
Arg	Glu	Leu 515	Thr	Lys	Leu	Lys	Asn 520	Thr	Tyr	Val	Asp	Pro 525	Leu	Pro	Ser
Leu	Val 530	His	Pro	Arg	Thr	Gly 535	Arg	Leu	His	Thr	Arg 540	Phe	Asn	Gln	Thr
Ala	Thr	Ala	Thr	Gly	Arg	Leu	Ser	Ser	Ser	Asp	Pro	Asn	Leu	Gln	Asn

Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val
565 570 575

Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu 580 585 590

Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val
595 600 605

Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe 610 620

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys 625 630 635 640

Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser 645 650 655

Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg 660 665 670

Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu 675 680 685

Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg 690 695 700

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 720

Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 730 735

Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 745 750

Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala 755 760 765

Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met 770 775 780

Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 790 795 800

Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 810

<210> 2824

<211> 2520

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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<210> 2825

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2825

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Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu

Lys	Gly	Leu 35	Thr	Thr	Ser	Arg	Gly 40	Glu	Pro	Val	Gln	Ala 45	Val	Tyr	Gly
Phe	Ala 50	Lys	Ser	Leu	Leu	Lys 55	Ala	Leu	Lys	Glu	Asp 60	Gly	Asp	Ala	Val
Ile 65	Val	Val	Phe	Asp	Ala 70	Lys	Ala	Pro	Ser	Phe 75	Arg	His	Glu	Ala	Tyr 80
Gly	Gly	Tyr	Lys	Ala 85	Gly	Arg	Ala	Pro	Thr 90	Pro	Glu	Asp	Phe	Pro 95	Arg
Gln	Leu	Ala	Leu 100	Val	Lys	Arg	Leu	Val 105	Asp	Leu	Leu	Gly	Phe 110	Thr	Arg
Leu	Glu	Ala 115	Pro	Gly	Tyr	Glu	Ala 120	Asp	Asp	Val	Leu	Gly 125	Thr	Leu	Ala
Lys	Lys 130	Ala	Glu	Lys	Glu	Gly 135	Tyr	Glu	Val	Arg	Ile 140	Leu	Thr	Ala	Asp
Arg 145	Asp	Leu	Tyr	Gln	Leu 150	Val	Ser	Asp	Arg	Ile 155	His	Val	Leu	His	Pro 160
Glu	Gly	Tyr	Leu	Ile 165	Thr	Pro	Glu	Trp	Leu 170	Trp	Glu	Lys	Tyr	Gly 175	Leu
Lys	Pro	Ser	Gln 180	Trp	Val	Asp	Tyr	Arg 185	Ala	Leu	Ala	Gly	Asp 190	Pro	Ser
Asp	Asn	Ile 195	Pro	Gly	Val	Lys	Gly 200	Ile	Gly	Glu	Lys	Thr 205	Ala	Ala	Lys
Leu	Ile 210	Arg	Glu	Trp	Gly	Ser 215	Leu	Glu	Asn	Leu	Leu 220	Lys	Asn	Leu	Asp
Arg 225	Leu	Lys	Pro	Ala	Ile 230	Arg	Glu	Lys	Ile	Leu 235	Ala	His	Met	Asp	Asp 240
Leu	Lys	Leu	Ser	Trp 245	Asp	Leu	Ala	Lys	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Ala	Lys	Arg	Arg	Glu 265	Pro	Asp	Arg	Glu	Arg 270	Leu	Arg

Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Glu	Ser	Pro	Lys	Ala 295	Leu	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Pro	Glu	Pro	Met	Trp 320
Ala	Glu	Leu	Lys	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly
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Leu	Val 370	Pro	Gly	Asp	Asp	Pro 375	Met	Leu	Leu	Ala	Tyr 380	Leu	Leu	Gly	Pro
Ser 385	Asn	Thr	Thr	Pro	Glu 390	Gly	Val	Ala	Arg	Arg 395	Tyr	Gly	Gly	Glu	Trp 400
Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr
His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
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Phe	Asp	Glu	Leu 500	Arg	Leu	Pro	Ala	Leu 505	Lys	Lys	Thr	Lys	Lys 510	Thr	Gly
Lys	Arg	Ser 515	Thr	Ser	Ala	Ala	Val 520	Leu	Glu	Ala	Leu	Arg 525	Glu	Ala	His

Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
Asn 545	Thr	Tyr	Val	Asp	Pro 550	Leu	Pro	Ser	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
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Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615	Ile	Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
His	Thr	Gln	Thr	Ala 645	Ser	Trp	Met	Phe	Gly 650	Val	Pro	Pro	Glu	Ala 655	Val
Asp	Pro	Leu	Met 660	Arg	Arg	Ala	Ala	Lys 665	Thr	Val	Asn	Phe	Gly 670	Val	Leu
Tyr	Gly	Met 675	Ser	Ala	His	Arg	Leu 680	Ser	Gln	Glu	Leu	Ala 685	Ile	Pro	Tyr
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Val 705	Arg	Ala	Trp	Ile	Glu 710	Lys	Thr	Leu	Glu	Glu 715	Gly	Arg	Lys	Arg	Gly 720
Tyr	Val	Glu	Thr	Leu 725	Phe	Gly	Arg	Arg	Arg 730	Tyr	Val	Pro	Asp	Leu 735	Asn
Ala	Arg	Val	Lys 740	Ser	Val	Arg	Glu	Ala 745	Ala	Glu	Arg	Met	Ala 750	Phe	Asn
Met	Pro	Val 755	Gln	Gly	Thr	Ala	Ala 760	Asp	Leu	Met	Lys	Leu 765	Ala	Met	Val
Lys	Leu	Phe	Pro	Arg	Leu	Arg	Glu	Met	Gly	Ala	Arg	Met	Leu	Leu	Gln

770 775 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly His His His His His 835

<210> 2826

<211> 2445

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2826

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- 2033 -

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gccaacgagc	tcctcctgga	ggccccccaa	gcgcgggccg	aggaggtggc	ggctttggcc	2340
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<210> 2827

<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2827

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu 130 140

Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu 195 200 205

Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys 210 215 220

Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys
Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp	Gln	Leu	Glu	Arg	Val	Leu	Phe	Asp	Glu	Leu	Arg	Leu	Pro	Ala	Leu

Lys Lys Thr Lys Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu 485 490 495

Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His
500 505 510

Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser 515 520 525

Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr 530 540

Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn 545 550 555 560

Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val
565 570 575

Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu 580 585 590

Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val 595 600 605

Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe 610 620

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys 625 630 635

Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser 645 650 655

Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg 660 665 670

Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu 675 680 685

Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg 690 695 700

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 720

Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp
725 730 735

Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 745 750

Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala 755 760 765

Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met 770 780

Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 790 795 800

Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 810 815

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<211> 2445

<212> DNA

<213> Artificial Sequence

<220>

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gaccggctga agcccgccat ccgggagaag atcctggccc acatggacga tctgaagctc

720

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aacaccaccc	ccgagggggt	ggcgcggcgc	tacggggggg	agtggacgga	ggacgccgcc	1140
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gcggaggaga	tccgccgcct	cgaggaggag	gtcttccgct	tggcgggcca	ccccttcaac	1380
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gaggcccacc	ccatcgtgga	gaagatcctc	cagcaccggg	agctcaccaa	gctcaagaac	1560
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<210> 2829

<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2829

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu 130 135 140

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu 195 200 205

Glu	Trp 210	Gly	Ser	Leu	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys
Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu	Val	Phe	Arq	Leu	Ala	Gly	His	Pro	Phe	Asn	Leu	Asn	Ser	Arg

Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
Arg	Glu	Leu 515	Thr	Lys	Leu	Lys	Asn 520	Thr	Tyr	Val	Asp	Pro 525	Leu	Pro	Ser
Leu	Val 530	His	Pro	Arg	Thr	Gly 535	Arg	Leu	His	Thr	Arg 540	Phe	Asn	Gln	Thr
Ala 545	Thr	Ala	Thr	Gly	Arg 550	Leu	Ser	Ser	Ser	Asp 555	Pro	Asn	Leu	Gln	Asn 560
Ile	Pro	Val	Arg	Thr 565	Pro	Leu	Gly	Gln	Arg 570	Ile	Arg	Arg	Ala	Phe 575	Val
Ala	Glu	Ala	Gly 580	Trp	Ala	Leu	Val	Ala 585	Leu	Asp	Tyr	Ser	Gln 590	Ile	Glu
Leu	Arg	Val 595	Leu	Ala	His	Leu	Ser 600	Gly	Asp	Glu	Asn	Leu 605	Ile	Arg	Val
Phe	Gln 610	Glu	Gly	Lys	Asp	Ile 615	His	Thr	Gln	Thr	Ala 620	Ser	Trp	Met	Phe
Gly 625	Val	Pro	Pro	Glu	Ala 630	Val	Asp	Pro	Leu	Met 635	Arg	Arg	Ala	Ala	Lys 640
Thr	Val	Asn	Phe	Gly 645	Val	Leu	Tyr	Gly	Met 650	Ser	Ala	His	Arg	Leu 655	Ser
Gln	Glu	Leu	Ala 660	Ile	Pro	Tyr	Glu	Glu 665	Ala	Val	Ala	Phe	Ile 670	Glu	Arg
Tyr	Phe	Gln 675	Ser	Phe	Pro	Lys	Val 680	Arg	Ala	Trp	Ile	Glu 685	Lys	Thr	Leu
Glu	Glu 690	Gly	Arg	Lys	Arg	Gly 695	Tyr	Val	Glu	Thr	Leu 700	Phe	Gly	Arg	Arg

710 720 705 Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 Gly Ala Arq Met Leu Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala 760 Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 810 <210> 2830 <211> 2520 <212> DNA <213> Artificial Sequence <220> Synthetic <223> <400> 2830 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg tacctttttt gccctgaagg gcctcaccac cagccggggg 120 gagccggtcc aggcggtgta cgggtttgcc aagagccttt tgaaggcgct aagagaagac 180 ggggacgcgg tgatcgtggt ctttgacgcc gaggccccct ccttccgcca cgaggcctac 240 ggggggtaca aggcggggcg ggctcccacc cccgaggact ttccccggca gcttgccctt 300 atcaaqqaqc tqqtqqacct cctqqqqttt acccqcctcg aggtccccgg ctacgaggcg 360 gacgacgttc tcgccaccct ggccaagaag gcggaaaagg aggggtacga ggtgcgcatc 420 ctcaccqccq acaaaqacct ttaccaqctc ctttccgacc gcatccacgt cctccacccc 480 gaggggtacc tcatcacccc ggcctggctt tgggaaaagt acggcctgag gcccgaccag 540 tgggccgact accgggccct gaccggggac gagtccgaca accttcccgg ggtcaagggc 600

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala

660 atcggggaga agaccgccct caagctcctc aaggagtggg ggagcctgga agccctcctc 720 aagaacctgg accggctgaa gcccgccatc cgggagaaga tcctggccca catggacgat ctgaagetet cetgggaeet ggeeaaggtg egeacegaee tgeeeetgga ggtggaette 780 840 gccaaaaggc gggagcccga ccgggagggg cttaaggcct ttttggagag gctggagttc 900 ggcagcetce tecaegagtt eggceteetg ggaggggaga ageceeggga ggaggeeeee tggcccccgc cggaaggggc cttcgtgggc tttgtgcttt cccgcaagga gcccatgtgg 960 1020 geogatette tggccetgge egeetgeagg ggeggeegeg tgeaceggge ageagacece 1080 ttggcggggc taaaggacct caaggaggtc cggggcctcc tcgccaagga cctcgccgtc ttggcctcga gggaggggct agacctcgtg cccggggacg accccatgct cctcgcctac 1140 1200 ctcctgggcc cctcgaacac caccccgag ggggtggcgc ggcgctacgg gggggagtgg acggaggacg ccgcccaccg ggccctcctc tcggagaggc tccatcggaa cctccttaag 1260 1320 cgcctcgagg gggaggagaa gctcctttgg ctctaccacg aggtggaaaa gcccctctcc 1380 cgggtcctgg cccatatgga ggccaccggg gtacggctgg acgtggccta ccttcaggcc ettteeetgg agettgegga ggagateege egeetegagg aggaggtett eegettggeg 1440 1500 ggccacccct tcaacctcaa ctcccgggac cagctggaaa gggtgctctt tgacgagctt 1560 aggetteeeg cettgaagaa gacgaagaag acaggeaage geteeaceag egeegeggtg ctggaggccc tacgggaggc ccaccccatc gtggagaaga tcctccagca ccgggagctc 1620 1680 accaagetea agaacaceta egtggacece etcecaagee tegtecacee gaggaeggge cgcctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac 1740 1800 cccaacetge agaacatece egteegeace ecettgggee agaggateeg eegggeette 1860 gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccgcgtc ctcgcccacc tctccgggga cgaaaacctg atcagggtct tccaggaggg gaaggacatc 1920 1980 cacacccaga ccgcaagetg gatgttcggc gtcccccgg aggccgtgga ccccctgatg cgccgggcgg ccaagacggt gaacttcggc gtcctctacg gcatgtccgc ccataggctc 2040 tcccaggagc ttgccatccc ctacgaggag gcggtggcct ttatagagcg ctacttccaa 2100 agcttcccca aggtgcgggc ctggatagaa aagaccctgg aggaggggag gaagcggggc 2160 tacgtggaaa ccctcttcgg aagaaggcgc tacgtgcccg acctcaacgc ccgggtgaag 2220 2280 agegteaggg aggeegegga gegeatggee tteaacatge cegtecaggg cacegeegee gacctcatga agctcgccat ggtgaagctc ttcccccgcc tccgggagat gggggcccgc 2340 2400 atgetectee aggtegeeaa egageteete etggaggeee eecaagegeg ggeegaggag

2460

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<210> 2831

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2831

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Ala Val 50 55 60

Ile Val Val Phe Asp Ala Glu Ala Pro Ser Phe Arg His Glu Ala Tyr 65 70 75 80

Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg 85 90 95

Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg 100 105 110

Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala 115 120 125

Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp 130 135 140

Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro 145 150 155 160

Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu 165 170 175

Arg	Pro	Asp	Gln 180	Trp	Ala	Asp	Tyr	Arg 185	Ala	Leu	Thr	Gly	Asp 190	Glu	Ser
Asp	Asn	Leu 195	Pro	Gly	Val	Lys	Gly 200	Ile	Gly	Glu	Lys	Thr 205	Ala	Leu	Lys
Leu	Leu 210	Lys	Glu	Trp	Gly	Ser 215	Leu	Glu	Ala	Leu	Leu 220	Lys	Asn	Leu	Asp
Arg 225	Leu	Lys	Pro	Ala	Ile 230	Arg	Glu	Lys	Ile	Leu 235	Ala	His	Met	Asp	Asp 240
Leu	Lys	Leu	Ser	Trp 245	Asp	Leu	Ala	Lys	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Ala	Lys	Arg	Arg	Glu 265	Pro	Asp	Arg	Glu	Gly 270	Leu	Lys
Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Gly	Gly	Glu	Lys	Pro 295	Arg	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Lys	Glu	Pro	Met	Trp 320
Ala	Asp	Leu	Leu	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly
Leu	Leu	Ala 355	Lys	Asp	Leu	Ala	Val 360	Leu	Ala	Ser	Arg	Glu 365	Gly	Leu	Asp
Leu	Val 370	Pro	Gly	Asp	Asp	Pro 375	Met	Leu	Leu	Ala	Tyr 380	Leu	Leu	Gly	Pro
Ser 385	Asn	Thr	Thr	Pro	Glu 390	Gly	Val	Ala	Arg	Arg 395	Tyr	Gly	Gly	Glu	Trp 400
Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr

His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
Thr	Gly 450	Val	Arg	Leu	Asp	Val 455	Ala	Tyr	Leu	Gln	Ala 460	Leu	Ser	Leu	Glu
Leu 465	Ala	Glu	Glu	Ile	Arg 470	Arg	Leu	Glu	Glu	Glu 475	Val	Phe	Arg	Leu	Ala 480
Gly	His	Pro	Phe	Asn 485	Leu	Asn	Ser	Arg	Asp 490	Gln	Leu	Glu	Arg	Val 495	Leu
Phe	Asp	Glu	Leu 500	Arg	Leu	Pro	Ala	Leu 505	Lys	Lys	Thr	Lys	Lys 510	Thr	Gly
Lys	Arg	Ser 515	Thr	Ser	Ala	Ala	Val 520	Leu	Glu	Ala	Leu	Arg 525	Glu	Ala	His
Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
Asn 545	Thr	Tyr	Val	Asp	Pro 550	Leu	Pro	Ser	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
Ser	Ser	Ser	Asp 580	Pro	Asn	Leu	Gln	Asn 585	Ile	Pro	Val	Arg	Thr 590	Pro	Leu
Gly	Gln	Arg 595	Ile	Arg	Arg	Ala	Phe 600	Val	Ala	Glu	Ala	Gly 605	Trp	Ala	Leu
Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615	Ile	Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
His	Thr	Gln	Thr	Ala 645	Ser	Trp	Met	Phe	Gly 650	Val	Pro	Pro	Glu	Ala 655	Val
Asp	Pro	Leu	Met 660	Arg	Arg	Ala	Ala	Lys 665	Thr	Val	Asn	Phe	Gly 670	Val	Leu
Tvr	Glv	Met	Ser	Ala	His	Ara	Leu	Ser	Gln	Glu	Leu	Ala	Ile	Pro	Tyr

675 680 685

Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700

Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn
725 730 735

Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly His His His His His 835 840

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<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2832

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180 ccqgtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga 240 caggeggtgg tegtggtett tgaegecaag geceeteet teegecaega ggeetaegag 300 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccggcagct cgcccttatc 360 aaqqaqatqq tggacctttt gggcctggcg cgcctcgagg tcccgggcta cgaggcggac 420 gacgttctcg ccaccctggc caagaaggcg gaaaaggagg ggtacgaggt gcgcatcctc accgccgacc gcgacctcta ccaactcgtc tccgaccgcg tcgccgtcct ccaccccgag 480 540 ggccacctca tcaccccgga gtggctttgg gagaagtacg gcctcaggcc ggagcagtgg gtggacttcc gcgccctcgt gggggacccc tccgacaacc tccccggggt caagggcatc 600 660 ggggagaaga cggcggccaa gctgatccgg gagtggggaa gcctggaaaa ccttcttaag 720 cacctggaac aggtgaaacc tgcctccgtg cgggagaaga tccttagcca catggaggac 780 ctcaagctat ccctggagct atcccgggtg cacacggact tgctccttca ggtggacttt 840 aaggeeetge geegeaggae eecegaeetg gagggeetga gggeettttt ggaggagetg 900 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeege ggeggaggaa 960 getecetgge egececega gggageette gtggggtaeg ttettteeeg eeeegageee 1020 atgtgggcgg agcttaacgc cttggccgcc gcctggggcg gccgcgtgca ccgggcagca 1080 gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 1200 gectacetee tgggeecete caacaceace eeegaggggg tggegeggeg etacgggggg 1260 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1320 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1380 ctctcccggg tcctggccca catggaggcc accggggtac ggctggacgt ggcctacctt caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc 1440 1500 ttggcgggcc acceetteaa eeteaaetee egggaceage tggaaagggt getetttgae 1560 gagettagge ttecegeett gaagaagaeg aagaagaeag geaagegete caecagegee geggtgetgg aggeectaeg ggaggeecae cecategtgg agaagateet eeageaeegg 1620 gageteacea ageteaagaa cacetaegtg gaceceetee caageetegt ceaceegagg 1680 1740 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc tecgaececa acetgeagaa cateceegte egeaececet tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 1920 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc 1980

2040 ctgatgcgcc gggcgqccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2100 aggetetece aggagettge cateccetae gaggaggegg tggeetttat agagegetae ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160 cqqqqctacq tqqaaacct cttcqqaaga aggcgctacg tgcccgacct caacgcccgg 2220 2280 gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 2400 qcccqcatqc tcctccaggt cgccaacgag ctcctcctgg aggcccccca agcgcgggcc gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460 ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac 2520 2526 caccac

<210> 2833

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2833

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Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Ala Arg Leu

Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Thr 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Arg
Asp 145	Leu	Tyr	Gln	Leu	Val 150	Ser	Asp	Arg	Val	Ala 155	Val	Leu	His	Pro	Glu 160
Gly	His	Leu	Ile	Thr 165	Pro	Glu	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Glu	Gln	Trp 180	Val	Asp	Phe	Arg	Ala 185	Leu	Val	Gly	Asp	Pro 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Ala	Lys	Leu
Ile	Arg 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Asn	Leu	Leu	Lys 220	His	Leu	Glu	Gln
Val 225	Lys	Pro	Ala	Ser	Val 230	Arg	Glu	Lys	Ile	Leu 235	Ser	His	Met	Glu	Asp 240
Leu	Lys	Leu	Ser	Leu 245	Glu	Leu	Ser	Arg	Val 250	His	Thr	Asp	Leu	Leu 255	Leu
Gln	Val	Asp	Phe 260	Lys	Ala	Leu	Arg	Arg 265	Arg	Thr	Pro	Asp	Leu 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Glu	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Ala	Ala	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Tyr	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Asn	Ala	Leu	Ala	Ala 330	Ala	Trp	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val

Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp

Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly
Val	Leu	Tyr 675	Gly	Met	Ser	Ala	His 680	Arg	Leu	Ser	Gln	Glu 685	Leu	Ala	Ile
Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
Pro 705	Lys	Val	Arg	Ala	Trp 710	Ile	Glu	Lys	Thr	Leu 715	Glu	Glu	Gly	Arg	Lys 720
Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp
Leu	Asn	Ala	Arg 740	Val	Lys	Ser	Val	Arg 745	Glu	Ala	Ala	Glu	Arg 750	Met	Ala
Phe	Asn	Met 755	Pro	Val	Gln	Gly	Thr 760	Ala	Ala	Asp	Leu	Met 765	Lys	Leu	Ala
Met	Val 770	Lys	Leu	Phe	Pro	Arg 775	Leu	Arg	Glu	Met	Gly 780	Ala	Arg	Met	Leu
Leu 785	Gln	Val	Ala	Asn	Glu 790	Leu	Leu	Leu	Glu	Ala 795	Pro	Gln	Ala	Arg	Ala 800
Glu	Glu	Val	Ala	Ala 805	Leu	Ala	Lys	Glu	Ala 810	Met	Glu	Lys	Ala	Tyr 815	Pro
Leu	Ala	Val	Pro 820	Leu	Glu	Val	Glu	Val 825	Gly	Met	Gly	Glu	Asp 830	Trp	Leu
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<210> 2834

<211> 2511

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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1560 qccttqaaqa aqacqaaqaa gacaggcaag cgctccacca gcgccgcggt gctggaggcc ctacgggagg cccaccccat cgtggagaag atcctccagc accgggagct caccaagctc 1620 aaqaacacct acgtggaccc cctcccaagc ctcgtccacc cgaggacggg ccgcctccac 1680 1740 accepttea accapacope caeopecaeo gogagoetta grageteega ecceaaceto 1800 cagaacatcc ccgtccgcac ccccttgggc cagaggatcc gccgggcctt cgtggccgag qcqqqttqqq cqttqqtqqc cctggactat agccagatag agctccgcgt cctcgcccac 1860 1920 ctctccqqqq acqaaaacct gatcagggtc ttccaggagg ggaaggacat ccacacccag 1980 accgcaaget ggatgttegg egteeceeeg gaggeegtgg accceetgat gegeegggeg 2040 gccaagacgg tgaacttcgg cgtcctctac ggcatgtccg cccataggct ctcccaggag 2100 cttgccatcc cctacgagga ggcggtggcc tttatagagc gctacttcca aagcttcccc 2160 aaggtgcggg cctggataga aaagaccctg gaggagggga ggaagcgggg ctacgtggaa 2220 accetetteg gaagaaggeg etaegtgeee gaceteaaeg eeegggtgaa gagegteagg 2280 gaggccgcgg agcgcatggc cttcaacatg cccgtccagg gcaccgccgc cgacctcatg aagetegeea tggtgaaget etteeceege etcegggaga tgggggeeeg catgeteete 2340 2400 caqqtcqcca acgaqctcct cctggaggcc ccccaagcgc gggccgagga ggtggcggct 2460 ttggccaagg aggccatgga gaaggcctat cccctcgccg tgcccctgga ggtggaggtg gggatgggg aggactggct ttccgccaag ggtcaccacc accaccacca c 2511

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<211> 837

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2835

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Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

ser	ьец 50	ьeu	гуѕ	Ата	ьeu	55 55	GIU	Asp	GIY	Asp	60	vai	TTE	vai	vai
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Glu 75	Ala	Tyr	Gly	Gly	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
Leu	Ile	Lys	Glu 100	Leu	Val	Asp	Leu	Leu 105	Gly	Leu	Ala	Arg	Leu 110	Glu	Val
Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Gly 140	Asp	Arg	Asp	Leu
Tyr 145	Gln	Leu	Val	Ser	Asp 150	Arg	Val	Ala	Val	Leu 155	His	Pro	Glu	Gly	His 160
Leu	Ile	Thr	Pro	Glu 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Glu
Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Arg	Lys 205	Leu	Leu	Glu
Glu	Trp 210	Gly	Ser	Val	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Glu	Asp	Leu	Lys	Leu 240
Ser	Leu	Glu	Leu	Ser 245	Arg	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Leu	Ala	Gln	Gly 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Leu	Lys	Ala 270	Phe	Leu
Glu	Arg	Leu 275	Glu	Phe	Gly	Ser	Leu 280	Leu	His	Glu	Phe	Gly 285	Leu	Leu	Glu
Ser	Pro 290	Val	Ala	Ala	Glu	Glu 295	Ala	Pro	Trp	Pro	Pro 300	Pro	Glu	Gly	Ala

Phe 305	Val	Gly	Tyr	Val	Leu 310	Ser	Arg	Pro	Glu	Pro 315	Met	Trp	Ala	Glu	Leu 320
Asn	Ala	Leu	Ala	Ala 325	Ala	Trp	Gly	Gly	Arg 330	Val	His	Arg	Ala	Ala 335	Asp
Pro	Leu	Ala	Gly 340	Leu	Lys	Asp	Leu	Lys 345	Glu	Val	Arg	Gly	Leu 350	Leu	Ala
Lys	Asp	Leu 355	Ala	Val	Leu	Ala	Ser 360	Arg	Glu	Gly	Leu	Asp 365	Leu	Val	Pro
Gly	Asp 370	Asp	Pro	Met	Leu	Leu 375	Ala	Tyr	Leu	Leu	Gly 380	Pro	Ser	Asn	Thr
Thr 385	Pro	Glu	Gly	Val	Ala 390	Arg	Arg	Tyr	Gly	Gly 395	Glu	Trp	Thr	Glu	Asp 400
Ala	Ala	His	Arg	Ala 405	Leu	Leu	Ser	Glu	Arg 410	Leu	His	Arg	Asn	Leu 415	Leu
Lys	Arg	Leu	Glu 420	Gly	Glu	Glu	Lys	Leu 425	Leu	Trp	Leu	Tyr	His 430	Glu	Val
Glu	Lys	Pro 435	Leu	Ser	Arg	Val	Leu 440	Ala	His	Met	Glu	Ala 445	Thr	Gly	Val
Arg	Leu 450	Asp	Val	Ala	Tyr	Leu 455	Gln	Ala	Leu	Ser	Leu 460	Glu	Leu	Ala	Glu
465			Arg		470					475					480
Phe	Asn	Leu	Asn	Ser 485	Arg	Asp	Gln	Leu	Glu 490	Arg	Val	Leu	Phe	Asp 495	Glu
Leu	Arg	Leu	Pro 500	Ala	Leu	Lys	Lys	Thr 505	Lys	Lys	Thr	Gly	Lys 510	Arg	Ser
		515	Ala				520					525			
	530		Leu			535				_	540				
Val	Asp	Pro	Leu	Pro	Ser	Leu	Val	His	Pro	Arg	Thr	Gly	Arg	Leu	His

Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser 565 570 575

Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg 580 585 590

Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala Leu 595 600 605

Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp 610 620

Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln 625 630 635 640

Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu 645 650 655

Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met 660 665 670

Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala 675 680 685

Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala 690 695 700

Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu 705 710 715 720

Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val 725 730 735

Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val 740 745 750

Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe 755 760 765

Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn 770 780

Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala Ala 785 790 795 800 Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu 805 810 815

Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His 820 825 830

His His His His His 835

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<211> 2493

<212> DNA

<213> Artificial Sequence

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960

1020 1080

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<211> 831

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 2837

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Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe Ala Arg 35 40 45

Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val
100 105 110

Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Ser Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu 195 200 205

Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys 210 215 220

Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys Leu 225 230 235 240

Ser	Leu	Glu	Leu	Ser 245	Arg	Val	Arg	Thr	250	Leu	Pro	Leu	GIu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Arg	Leu	Arg	Ala 270	Phe	Leu
Glu	Arg	Leu 275	Glu	Phe	Gly	Ser	Leu 280	Leu	His	Glu	Phe	Gly 285	Pro	Leu	Glu
Ser	Pro 290	Arg	Ala	Ala	Glu	Glu 295	Ala	Pro	Trp	Pro	Pro 300	Pro	Glu	Gly	Ala
Phe 305	Val	Gly	Tyr	Val	Leu 310	Ser	Arg	Pro	Glu	Pro 315	Met	Trp	Ala	Glu	Leu 320
Asn	Ala	Leu	Ala	Ala 325	Ala	Arg	Gly	Gly	Arg 330	Val	His	Arg	Ala	Ala 335	Asp
Pro	Leu	Ala	Gly 340	Leu	Lys	Asp	Leu	Lys 345	Glu	Val	Arg	Gly	Leu 350	Leu	Ala
Lys	Asp	Leu 355	Ala	Val	Leu	Ala	Ser 360	Arg	Glu	Gly	Leu	Asp 365	Leu	.Val	Pro
Gly	Asp 370	Asp	Pro	Met	Leu	Leu 375	Ala	Tyr	Leu	Leu	Gly 380	Pro	Ser	Asn	Thr
Thr 385	Pro	Glu	Gly	Val	Ala 390	Arg	Arg	Tyr	Gly	Gly 395	Glu	Trp	Thr	Glu	Asp 400
Ala	Ala	His	Arg	Ala 405	Leu	Leu	Ser	Glu	Arg 410	Leu	His	Arg	Asn	Leu 415	Leu
Lys	Arg	Leu	Glu 420	Gly	Glu	Glu	Lys	Leu 425	Leu	Trp	Leu	Tyr	His 430	Glu	Val
Glu	Lys	Pro 435	Leu	Ser	Arg	Val	Leu 440	Ala	His	Met	Glu	Ala 445	Thr	Gly	Val
Arg	Leu 450	Asp	Val	Ala	Tyr	Leu 455	Gln	Ala	Leu	Ser	Leu 460	Glu	Leu	Ala	Glu
Glu 465	Ile	Arg	Arg	Leu	Glu 470	Glu	Glu	Val	Phe	Arg 475	Leu	Ala	Gly	His	Pro 480
Phe	Asn	Leu	Asn	Ser 485	Arg	Asp	Gln	Leu	Glu 490	Arg	Val	Leu	Phe	Asp 495	Glu

Leu	Arg	Leu	Pro 500	Ala	Leu	Lys	Lys	Thr 505	Lys	Lys	Thr	Gly	Lys 510	Arg	Ser
Thr	Ser	Ala 515	Ala	Val	Leu	Glu	Ala 520	Leu	Arg	Glu	Ala	His 525	Pro	Ile	Val
Glu	Lys 530	Ile	Leu	Gln	His	Arg 535	Glu	Leu	Thr	Lys	Leu 540	Lys	Asn	Thr	Tyr
Val 545	Asp	Pro	Leu	Pro	Ser 550	Leu	Val	His	Pro	Arg 555	Thr	Gly	Arg	Leu	His 560
Thr	Arg	Phe	Asn	Gln 565	Thr	Ala	Thr	Ala	Thr 570	Gly	Arg	Leu	Ser	Ser 575	Ser
Asp	Pro	Asn	Leu 580	Gln	Asn	Ile	Pro	Val 585	Arg	Thr	Pro	Leu	Gly 590	Gln	Arg
Ile	Arg	Arg 595	Ala	Phe	Val	Ala	Glu 600	Ala	Gly	Trp	Ala	Leu 605	Val	Ala	Leu
Asp	Tyr 610	Ser	Gln	Ile	Glu	Leu 615	Arg	Val	Leu	Ala	His 620	Leu	Ser	Gly	Asp
Glu 625	Asn	Leu	Ile	Arg	Val 630	Phe	Gln	Glu	Gly	Lys 635	Asp	Ile	His	Thr	Gln 640
Thr	Ala	Ser	Trp	Met 645	Phe	Gly	Val	Pro	Pro 650	Glu	Ala	Val	Asp	Pro 655	Leu
Met	Arg	Arg	Ala 660	Ala	Lys	Thr	Val	Asn 665	Phe	Gly	Val	Leu	Tyr 670	Gly	Met
Ser	Ala	His 675	Arg	Leu	Ser	Gln	Glu 680	Leu	Ala	Ile	Pro	Tyr 685	Glu	Glu	Ala
Val	Ala 690	Phe	Ile	Glu	Arg	Tyr 695	Phe	Gln	Ser	Phe	Pro 700	Lys	Val	Arg	Ala
Trp 705	Ile	Glu	Lys	Thr	Leu 710	Glu	Glu	Gly	Arg	Lys 715	Arg	Gly	Tyr	Val	Glu 720
Thr	Leu	Phe	Gly	Arg 725	Arg	Arg	Tyr	Val	Pro 730	Asp	Leu	Asn	Ala	Arg 735	Val
Lys	Ser	Val	Arg	Glu	Ala	Ala	Glu	Arg	Met	Ala	Phe	Asn	Met	Pro	Val

740 745 750

Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe 755 760 765

Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn 770 780

Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala Ala 785 790 795 800

Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu 805 810 815

Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

<210> 2838

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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<212> PRT

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<223> Synthetic

<400> 2839

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His	Glu	Val	Glu	Lys	Pro	Leu	Ser	Arg	Val	Leu	Ala	His	Met

435 440 445

GIu	A1a 450	Thr	GIY	Val	Arg	ьеи 455	Asp	vai	Ala	Tyr	460	GIN	Ala	ьeu	ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
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Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
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Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650		Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 680

Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe	
Pro 705	Lys	Val	Arg	Ala	Trp 710	Ile	Glu	Lys	Thr	Leu 715	Glu	Glu	Gly	Arg	Lys 720	
Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp	
Leu	Asn	Ala	Arg 740	Val	Lys	Ser	Val	Arg 745	Glu	Ala	Ala	Glu	Arg 750	Met	Ala	
Phe	Asn	Met 755	Pro	Val	Gln	Gly	Thr 760	Ala	Ala	Asp	Leu	Met 765	Lys	Leu	Ala	
Met	Val 770	Lys	Leu	Phe	Pro	Arg 775	Leu	Arg	Glu	Met	Gly 780	Ala	Arg	Met	Leu	
Leu 785	Gln	Val	Ala	Asn	Glu 790	Leu	Leu	Leu	Glu	Ala 795	Pro	Gln	Ala	Arg	Ala 800	
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Leu	Ala	Val	Pro 820	Leu	Glu	Val	Glu	Val 825	Gly	Met	Gly	Glu	Asp 830	Trp	Leu	
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2100

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<212> PRT

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu

Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
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125

120

115

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285

Phe Gly Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 360 365

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Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
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Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala

His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly
Val	Leu	Tyr 675	Gly	Met	Ser	Ala	His 680	Arg	Leu	Ser	Gln	Glu 685	Leu	Ala	Ile
Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
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Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp
Leu	Asn	Ala	Arg 740	Val	Lys	Ser	Val	Arg 745	Glu	Ala	Ala	Glu	Arg 750	Met	Ala
Phe	Asn	Met 755	Pro	Val	Gln	Gly	Thr 760	Ala	Ala	Asp	Leu	Met 765	Lys	Leu	Ala
Met	Val 770	Lys	Leu	Phe	Pro	Arg 775	Leu	Arg	Glu	Met	Gly 780	Ala	Arg	Met	Leu
Leu 785	Gln	Val	Ala	Asn	Glu 790	Leu	Leu	Leu	Glu	Ala 795	Pro	Gln	Ala	Arg	Ala 800
Glu	Glu	Val	Ala	Ala 805	Leu	Ala	Lys	Glu	Ala 810	Met	Glu	Lys	Ala	Tyr 815	Pro
Leu	Ala	Val	Pro 820	Leu	Glu	Val	Glu	Val 825	Gly	Met	Gly	Glu	Asp 830	Trp	Leu
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<223> Synthetic

<400> 2843

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala

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Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
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Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
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Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
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Leu 785	Gln	Val	Ala	Asn	Glu 790	Leu	Leu	Leu	Glu	Ala 795	Pro	Gln	Ala	Arg	Ala 800
Glu	Glu	Val	Ala	Ala	Leu	Ala	Lys	Glu	Ala	Met	Glu	Lys	Ala	Tyr	Pro

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ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat
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<211> 842

<212> PRT

<213> Artificial Sequence

<223> Synthetic

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240

Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro	Phe	Asn	Leu	Asn	Ser	Arg	Asp	Gln	Leu	Glu	Arg

Val	Leu	Phe	500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Гуѕ	510	гàг	гÀг
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	GlΣ
Val	Leu	Tyr 675	Gly	Met	Ser	Ala	His 680	Arg	Leu	Ser	Gln	Glu 685	Leu	Ala	Ile
Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
Pro 705	Lys	Val	Arg	Ala	Trp 710	Ile	Glu	Lys	Thr	Leu 715	Glu	Glu	Gly	Arg	Lys 720
Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His 835 <210> 2846 <211> 2526 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 2846 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg cacccgccac gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggect acaaggeggg gagggeeceg acceeegagg actteeceeg geagetegee 300 360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 420 gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeac 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540

600

cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag

660 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 780 gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 900 gagtteggea geeteeteea egagttegge eteetggagg eeceegeece eetggaggag 960 geoceetgge ceeegeegga aggggeette gtgggetteg teeteteeeg eeeegageee 1020 atgtgggcgg agettaaage eetggeegee tgeaggggeg geegegtgea eegggeagea gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 1200 gcctacctcc tgggcccctc caacaccacc cccgaggggg tggcgcggcg ctacgggggg 1260 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 1380 ctctcccggg tcctggccca catggaggcc accggggtac ggctggacgt ggcctacctt 1440 caggecettt ceetggaget tgeggaggag atcegeegee tegaggagga ggtetteege 1500 ttggcgggcc acccettcaa cetcaactee egggaccage tggaaagggt getetttgae 1560 gagettagge ttecegeett gaagaagaeg aagaagaeag geaagegete caccagegee geggtgetgg aggecetacg ggaggeceae eccategtgg agaagateet ecageaeegg 1620 1680 gageteacca ageteaagaa cacetaegtg gaceceetee caageetegt ecacecgagg 1740 acqqqccqcc tccacacccq cttcaaccaq acqqccacqq ccacqqqqaq qcttaqtaqc tecgacecca acetgeagaa cateceegte egeaceceet tgggeeagag gateegeegg 1800 1860 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag 1920 gacatecaca eccagacege aagetggatg tteggegtee ecceggagge egtggaceee 1980 2040 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2100 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae 2160 ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2220 eggggetacg tggaaacect etteggaaga aggegetacg tgeeegaeet caaegeeegg 2280 gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc 2340 geogeogace teatgaaget egecatggtg aagetettee eeegeeteeg ggagatgggg 2400 gecegeatge tectecaggt egecaaegag etecteetgg aggeeecea agegegggee gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460

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<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2847

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly

Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
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Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu

His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys.	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

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<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2849

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

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Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
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Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val

arg	GIY	ьец 355	ьeu	Ala	гуя	Asp	360	Ala	Val	ьец	Ala	365	Arg	Giu	GIY
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
				565					570		Ala			575	
			580					585			Ile		590		
Pro	Leu	Gly	Gln	Arg	Ile	Arg	Arg	Ala	Phe	Val	Ala	Glu	Ala	Gly	Trp

Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly
Val	Leu	Tyr 675	Gly	Met	Ser	Ala	His 680	Arg	Leu	Ser	Gln	Glu 685	Leu	Ala	Ile
Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
Pro 705	Lys	Val	Arg	Ala	Trp 710	Ile	Glu	Lys	Thr	Leu 715	Glu	Glu	Gly	Arg	Lys 720
Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp
Leu	Asn	Ala	Arg 740	Val	Lys	Ser	Val	Arg 745	Glu	Ala	Ala	Glu	Arg 750	Met	Ala
Phe	Asn	Met 755	Pro	Val	Gln	Gly	Thr 760	Ala	Ala	Asp	Leu	Met 765	Lys	Leu	Ala
Met	Val 770	Lys	Leu	Phe	Pro	Arg 775	Leu	Arg	Glu	Met	Gly 780	Ala	Arg	Met	Leu
Leu	Gln	Val	Ala	Asn	Glu	Leu	Leu	Leu	Glu	Ala	Pro	Gln	Ala	Arg	Ala

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro

Ser Ala Lys Gly His His His His His His 835 840

785

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<211> 2514

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<210> 2851

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2851

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Asp Gly His His Leu Ala Tyr Arg Thr Arg Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys

35

Ser I	Leu	Leu	Lys	Ala	Leu	Arg	Glu	Asp	Gly	Asp	Val	Val	Ile	Val	Val
5	50					55					60				

- Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80
- Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95
- Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
- Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125
- Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 140
- Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr 145 150 155 160
- Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser 165 170 175
- Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile 180 185 190
- Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205
- Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 215 220
- Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys 225 230 235 240
- Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Gln Val 245 250 255
- Asp Phe Ala Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe 260 265 270
- Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu 275 280 285

GIu	Ser 290	Pro	Val	Ala	Ala	295	GIU	Ala	Pro	Trp	300	PIO	PIO	GIU	GIÀ
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu
Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490		Arg	Val	Leu	Phe 495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505		Lys	Lys	Thr	Gly 510	Lys	Arg
		515			Val		520					525			
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr

Tyr 545	Val	Asp	Pro	Leu	550	ser	Leu	vai	HIS	555	Arg	THE	GIY	Arg	560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Arg	Arg 660	Ala	Ala	Lys	Thr	Val 665	Asn	Phe	Gly	Val	Leu 670	Tyr	Gly
Met	Ser	Ala 675	His	Arg	Leu	Ser	Gln 680	Glu	Leu	Ala	Ile	Pro 685	Tyr	Glu	Glu
Ala	Val 690	Ala	Phe	Ile	Glu	Arg 695	Tyr	Phe	Gln	Ser	Phe 700	Pro	Lys	Val	Arg
Ala 705	Trp	Ile	Glu	Lys	Thr 710	Leu	Glu	Glu	Gly	Arg 715	Lys	Arg	Gly	Tyr	Val 720
Glu	Thr	Leu	Phe	Gly 725	Arg	Arg	Arg	Tyr	Val 730	Pro	Asp	Leu	Asn	Ala 735	Arg
Val	Lys	Ser	Val 740	Arg	Glu	Ala	Ala	Glu 745	Arg	Met	Ala	Phe	Asn 750	Met	Pro
Val	Gln	Gly 755	Thr	Ala	Ala	Asp	Leu 760	Met	Lys	Leu	Ala	Met 765	Val	Lys	Leu
Phe	Pro 770	Arg	Leu	Arg	Glu	Met 775	Gly	Ala	Arg	Met	Leu 780	Leu	Gln	Val	Ala
Asn	Glu	Leu	Leu	Leu	Glu	Ala	Pro	Gln	Ala	Arg	Ala	Glu	Glu	Val	Ala

785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

His His His His His 835

<210> 2852

<211> 2514

<212> DNA

<213> Artificial Sequence

<220>

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<400> 2852

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1020 cttaacgcct tggccgccgc ctggggcggc cgcgtgcacc gggcagcaga ccccttggcg 1080 gggctaaagg acctcaagga ggtccggggc ctcctcgcca aggacctcgc cgtcttggcc tcgagggagg ggctagacct cgtgcccggg gacgacccca tgctcctcgc ctacctcctg 1140 ggcccctcca acaccacccc cgagggggtg gcgcggcgct acggggggga gtggacggag 1200 gacgccgccc accgggccct cctctcggag aggctccatc ggaacctcct taagcgcctc 1260 1320 gagggggagg agaagctcct ttggctctac cacgaggtgg aaaagcccct ctcccgggtc ctggcccaca tggaggccac cggggtacgg ctggacgtgg cctaccttca ggccctttcc 1380 ctggagcttg cggaggagat ccgccgcctc gaggaggagg tcttccgctt ggcgggccac 1440 cccttcaacc tcaactcccg ggaccagctg gaaagggtgc tctttgacga gcttaggctt 1500 1560 cccgccttga agaagacgaa gaagacaggc aagcgctcca ccagcgccgc ggtgctggag 1620 gccctacggg aggcccaccc catcgtggag aagatcctcc agcaccggga gctcaccaag 1680 ctcaagaaca cctacgtgga ccccctccca agcctcgtcc acccgaggac gggccgcctc cacacccgct tcaaccagac ggccacggcc acggggaggc ttagtagctc cgaccccaac 1740 1800 ctgcagaaca teccegteeg caceceettg ggecagagga teegeeggge ettegtggee gaggcgggtt gggcgttggt ggccctggac tatagccaga tagagctccg cgtcctcgcc 1860 1920 cacctctccg gggacgaaaa cctgatcagg gtcttccagg aggggaagga catccacacc 1980 cagaccgcaa getggatgtt eggegteece eeggaggeeg tggacceeet gatgegeegg 2040 geggeeaaga eggtgaaett eggegteete taeggeatgt eegeeeatag geteteeeag gagettgeca teceetaega ggaggeggtg geetttatag agegetaett ecaaagette 2100 cccaaggtgc gggcctggat agaaaagacc ctggaggagg ggaggaagcg gggctacgtg 2160 2220 gaaaccctct tcggaagaag gcgctacgtg cccgacctca acgcccgggt gaagagcgtc 2280 agggaggccg cggagcgcat ggccttcaac atgcccgtcc agggcaccgc cgccgacctc atgaageteg ceatggtgaa getetteeee egeeteeggg agatggggge eegeatgete 2340 2400 ctccaggtcg ccaacgagct cctcctggag gccccccaag cgcgggccga ggaggtggcg 2460 getttggcca aggaggccat ggagaaggce tatcccctcg ccgtgcccct ggaggtggag 2514 gtggggatgg gggaggactg gctttccgcc aagggtcacc accaccacca ccac

<210> 2853

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2853

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Asp Gly His His Leu Ala Tyr Arg Thr Arg His Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val 100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser 165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 220

Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu
Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480

Pro	Pne	Asn	Leu	485	ser	Arg	Asp	GIN	490	GIU	Arg	vai	ьеи	495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505	Thr	Lys	Lys	Thr	Gly 510	Lys	Arg
Ser	Thr	Ser 515	Ala	Ala	Val	Leu	Glu 520	Ala	Leu	Arg	Glu	Ala 525	His	Pro	Ile
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr
Tyr 545	Val	Asp	Pro	Leu	Pro 550	Ser	Leu	Val	His	Pro 555	Arg	Thr	Gly	Arg	Leu 560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Arg	Arg 660	Ala	Ala	Lys	Thr	Val 665	Asn	Phe	Gly	Val	Leu 670	Tyr	Gly
Met	Ser	Ala 675	His	Arg	Leu	Ser	Gln 680	Glu	Leu	Ala	Ile	Pro 685		Glu	Glu
Ala	Val 690	Ala	Phe	Ile	Glu	Arg 695	_	Phe	Gln	Ser	Phe 700	Pro	Lys	Val	Arg
Ala 705	Trp	Ile	Glu	Lys	Thr 710	Leu	Glu	Glu	Gly	Arg 715		Arg	Gly	Tyr	Val 720
Glu	Thr	Leu	Phe	Gly	Arg	Arg	Arg	Tyr	Val	Pro	Asp	Leu	Asn	Ala	Arg

725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu
755 760 765

Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala 785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

His His His His His 835

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<211> 2514

<212> DNA

<213> Artificial Sequence

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Ser	Leu 50	Leu	Lys	Ala	Leu	Arg 55	Glu	Asp	Gly	Asp	Val 60	Val	Ile	Val	Val
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Gln 75	Thr	Tyr	Glu	Ala	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
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Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Arg	Asp	Leu
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Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Ala	Lys 205	Leu	Ile	Arg
Glu	Trp 210	Gly	Ser	Leu	Glu	Asn 215	Leu	Leu	Lys	His	Leu 220	Glu	Gln	Val	Lys
Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
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Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu

Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Leu	Phe 495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505	Thr	Lys	Lys	Thr	Gly 510	Lys	Arg
Ser	Thr	Ser 515	Ala	Ala	Val	Leu	Glu 520	Ala	Leu	Arg	Glu	Ala 525	His	Pro	Ile
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr
Tyr 545	Val	Asp	Pro	Leu	Pro 550	Ser	Leu	Val	His	Pro 555	Arg	Thr	Gly	Arg	Leu 560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Arg	Arg	Ala	Ala	Lys	Thr	Val	Asn	Phe	Gly	Val	Leu	Tyr	Gly

660 665 670

Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685

Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 690 695 700

Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val
705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg
725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro 740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala 785 790 795 800

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Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

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Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
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Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
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Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
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Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu

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Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Gly	Pro	Ser
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Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Lys	Asp	Ile	His 640
Thr	Gln	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Pro	Glu	Ala	Val 655	Asp
Pro	Leu	Met	Arg 660	Arg	Ala	Ala	Lys	Thr 665	Val	Asn	Phe	Gly	Val 670	Leu	Tyr
Gly	Met	Ser 675	Ala	His	Arg	Leu	Ser 680	Gln	Glu	Leu	Ala	Ile 685	Pro	Tyr	Glu
Glu	Ala 690	Val	Ala	Phe	Ile	Glu 695	Arg	Tyr	Phe	Gln	Ser 700	Phe	Pro	Lys	Va]
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Val	Glu	Thr	Leu	Phe 725	Gly	Arg	Arg	Arg	Tyr 730	Val	Pro	Asp	Leu	Asn 735	Ala
Arg	Val	Lys	Ser 740	Val	Arg	Glu	Ala	Ala 745	Glu	Arg	Met	Ala	Phe 750	Asn	Met
Pro	Val	Gln 755	Gly	Thr	Ala	Ala	Asp 760	Leu	Met	Lys	Leu	Ala 765	Met	Val	Lys
Leu	Phe 770	Pro	Arg	Leu	Arg	Glu 775	Met	Gly	Ala	Arg	Met 780	Leu	Leu	Gln	Val
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Ala	Ala	Leu	Ala	Lys 805	Glu	Ala	Met	Glu	Lys 810	Ala	Tyr	Pro	Leu	Ala 815	Va.
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Gly His His His His His His 835

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